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SEQUENCE LISTING

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 THE SCRIPPS RESEARCH INSTITUTE

<120> DNA VACCINES AGAINST TUMOR GROWTH AND
 METHODS OF USE THEREOF

<130> TSRI 986.1 PC

<150> 60/509457

<151> 2003-10-08

<160> 10

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 954

<212> DNA

<213> HOMO SAPIENS

<400> 1

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tccaggggta cgtcgaaggc cttgtgaaca gatcagcccc gaggaagagg agcgccgccc 360
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gaccgacttc ctgcaggcgg agactgacaa actggaagat gagaaatctg ggctgcagcg 480
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cagcagccca ccagccccct gccgccctgt accttgtatc tccctttccc cagggcctgt 660
gcttgaacct gaggcactgc acacccccac actcatgacc acaccctccc taactccttt 720
cacccccagc ctggtcttca cctaccccag cactcctgag ccttgtgcct cagctcatcg 780
caagagtagc agcagcagcg gagacccatc ctctgacccc cttggctctc caaccctcct 840
cgctttgtga ggcgccctgag ccctactccc tgcagatgcc accctagcca atgtctcctc 900
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<210> 2

<211> 271

<212> PRT

<213> HOMO SAPIENS

<400> 2

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Gly Tyr Gly Gly Pro Ala Gln Pro Pro Ala Ala Ala Gln Ala Ala Gln
      20             25             30

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Gln Lys Phe His Leu Val Pro Ser Ile Asn Thr Met Ser Gly Ser Gln
 35 40 45
 Glu Leu Gln Trp Met Val Gln Pro His Phe Leu Gly Pro Ser Ser Tyr
 50 55 60
 Pro Arg Pro Leu Thr Tyr Pro Gln Tyr Ser Pro Pro Gln Pro Arg Pro
 65 70 75 80
 Gly Val Ile Arg Ala Leu Gly Pro Pro Pro Gly Val Arg Arg Arg Pro
 85 90 95
 Cys Glu Gln Ile Ser Pro Glu Glu Glu Glu Arg Arg Arg Val Arg Arg
 100 105 110
 Glu Arg Asn Lys Leu Ala Ala Lys Cys Arg Asn Arg Arg Lys Glu
 115 120 125
 Leu Thr Asp Phe Leu Gln Ala Glu Thr Asp Lys Leu Glu Asp Glu Lys
 130 135 140
 Ser Gly Leu Gln Arg Glu Ile Glu Glu Leu Gln Lys Gln Lys Glu Arg
 145 150 155 160
 Leu Glu Leu Val Leu Glu Ala His Arg Pro Ile Cys Lys Ile Pro Glu
 165 170 175
 Gly Ala Lys Glu Gly Asp Thr Gly Ser Thr Ser Gly Thr Ser Ser Pro
 180 185 190
 Pro Ala Pro Cys Arg Pro Val Pro Cys Ile Ser Leu Ser Pro Gly Pro
 195 200 205
 Val Leu Glu Pro Glu Ala Leu His Thr Pro Thr Leu Met Thr Thr Pro
 210 215 220
 Ser Leu Thr Pro Phe Thr Pro Ser Leu Val Phe Thr Tyr Pro Ser Thr
 225 230 235 240
 Pro Glu Pro Cys Ala Ser Ala His Arg Lys Ser Ser Ser Ser Ser Gly
 245 250 255
 Asp Pro Ser Ser Asp Pro Leu Gly Ser Pro Thr Leu Leu Ala Leu
 260 265 270

<210> 3

<211> 822

<212> DNA

<213> MUS MUSCULUS

<400> 3

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 agcccagagg aggaagagcg ccgcagggtg agacgcgagc ggaacaagct agcagctgct 360
 aagtgcagaa accgaagaaa ggagctgaca gacttcctgc aggcgagac cgacaaattg 420
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 gtgccttgca tctccctttc tccaggacct gtacttgaac cggaagcact gcataccccc 660
 acgctcatga ccacaccctc tctgactcct tttactccga gtctgggtttt cacctatcct 720
 agcacaccag aaccttgctc ctccactcac cgaaagagta gcagcagcag tggcgacccc 780
 tcctccgacc ccctggggtc tcctacactc ctggctttgt ga 822

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<210> 4
 <211> 273
 <212> PRT
 <213> MUS MUSCULUS

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 Ala Tyr Gly Arg Pro Ala Gln Pro Pro Gln Ala Gln Ala Gln Thr Ala
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 Gln Gln Gln Lys Phe His Phe Val Pro Ser Ile Asp Ser Ser Ser Gln
 35 40 45
 Glu Leu His Trp Met Val Gln Pro His Phe Leu Gly Pro Thr Gly Tyr
 50 55 60
 Pro Arg Pro Leu Ala Tyr Pro Gln Tyr Ser Pro Pro Gln Pro Arg Pro
 65 70 75 80
 Gly Val Ile Arg Ala Leu Gly Pro Pro Pro Gly Val Arg Arg Arg Pro
 85 90 95
 Cys Glu Gln Ile Ser Pro Glu Glu Glu Glu Arg Arg Arg Val Arg Arg
 100 105 110
 Glu Arg Asn Lys Leu Ala Ala Ala Lys Cys Arg Asn Arg Arg Lys Glu
 115 120 125
 Leu Thr Asp Phe Leu Gln Ala Glu Thr Asp Lys Leu Glu Asp Glu Lys
 130 135 140
 Ser Gly Leu Gln Arg Glu Ile Glu Glu Leu Gln Lys Gln Lys Glu Arg
 145 150 155 160
 Leu Glu Leu Val Leu Glu Ala His Arg Leu Ile Cys Lys Ile Pro Glu
 165 170 175
 Gly Asp Lys Lys Asp Pro Gly Gly Ser Gly Ser Thr Ser Gly Ala Ser
 180 185 190
 Ser Pro Pro Ala Pro Gly Arg Pro Val Pro Cys Ile Ser Leu Ser Pro
 195 200 205
 Gly Pro Val Leu Glu Pro Glu Ala Leu His Thr Pro Thr Leu Met Thr
 210 215 220
 Thr Pro Ser Leu Thr Pro Phe Thr Pro Ser Leu Val Phe Thr Tyr Pro
 225 230 235 240
 Ser Thr Pro Glu Pro Cys Ser Ser Thr His Arg Lys Ser Ser Ser Ser
 245 250 255
 Ser Gly Asp Pro Ser Ser Asp Pro Leu Gly Ser Pro Thr Leu Leu Ala
 260 265 270
 Leu

<210> 5
 <211> 1145
 <212> DNA
 <213> HOMO SAPIENS

<400> 5
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 gccacctgct gcagtctaca cagcttcggg aagaggaaaag gaacctcaga ccttcagat 180

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cgcttcctct cgcaacaaac tatttgctgc aggaataaag atggctgctg aaccagtaga 240
agacaattgc atcaactttg tggcaatgaa atttattgac aatacgcttt actttatagc 300
tgaagatgat gaaaacctgg aatcagatta ctttggcaag cttgaatcta aattatcagt 360
cataagaaat ttgaatgacc aagttctctt cattgaccaa ggaaatcggc ctctatttga 420
agatatgact gattctgact gtagagataa tgcaccccg accatattta ttataagtat 480
gtataaagat agccagccta gaggtatggc tgtaactatc tctgtgaagt gtgagaaaaat 540
ttcaactctc tcctgtgaga acaaaattat ttctttaag gaaatgaatc ctctgataa 600
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taagatgcaa tttgaatctt catcatacga aggatacttt cttagcttgtg aaaaagagag 720
agaccttttt aaactcattt tgaaaaaaga ggatgaattg ggggatagat ctataatgtt 780
cactgttcaa aacgaagact agctattaaa atttcatgcc gggcgagtg gctcacgcct 840
gtaatcccag ccctttggga ggctgaggcg ggcagatcac cagaggctcag gtgttcaaga 900
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atgtg                                     1145

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<210> 6

<211> 193

<212> PRT

<213> HOMO SAPIENS

<400> 6

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Met Ala Ala Glu Pro Val Glu Asp Asn Cys Ile Asn Phe Val Ala Met
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Lys Phe Ile Asp Asn Thr Leu Tyr Phe Ile Ala Glu Asp Asp Glu Asn
          20          25          30
Leu Glu Ser Asp Tyr Phe Gly Lys Leu Glu Ser Lys Leu Ser Val Ile
          35          40          45
Arg Asn Leu Asn Asp Gln Val Leu Phe Ile Asp Gln Gly Asn Arg Pro
          50          55          60
Leu Phe Glu Asp Met Thr Asp Ser Asp Cys Arg Asp Asn Ala Pro Arg
          65          70          75          80
Thr Ile Phe Ile Ile Ser Met Tyr Lys Asp Ser Gln Pro Arg Gly Met
          85          90          95
Ala Val Thr Ile Ser Val Lys Cys Glu Lys Ile Ser Thr Leu Ser Cys
          100          105          110
Glu Asn Lys Ile Ile Ser Phe Lys Glu Met Asn Pro Pro Asp Asn Ile
          115          120          125
Lys Asp Thr Lys Ser Asp Ile Ile Phe Phe Gln Arg Ser Val Pro Gly
          130          135          140
His Asp Asn Lys Met Gln Phe Glu Ser Ser Ser Tyr Glu Gly Tyr Phe
          145          150          155          160
Leu Ala Cys Glu Lys Glu Arg Asp Leu Phe Lys Leu Ile Leu Lys Lys
          165          170          175
Glu Asp Glu Leu Gly Asp Arg Ser Ile Met Phe Thr Val Gln Asn Glu
          180          185          190
Asp

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<210> 7

- 4 -

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tgaagatgat gaaaacctgg aatcagatta ctttggcaag cttgaatcta aattatcagt 360
cataagaaat ttgaatgacc aagttctctt cattgaccaa ggaaatcggc ctctatttga 420
agatatgact gattctgact gtagagataa tgcaccccg accatattta ttataagtat 480
gtataaagat agccagccta gaggtatggc tgtaactatc tctgtgaagt gtgagaaaat 540
ttcaactctc tcctgtgaga acaaaattat ttcctttaag gaaatgaatc ctctgataa 600
catcaaggat acaaaaagtg acatcatatt ctttcagaga agtgtcccag gacatgataa 660
taagatgcaa tttgaatctt catcatacga aggatacttt cttagcttgtg aaaaagagag 720
agaccttttt aaactcattt tgaaaaaaga ggatgaattg ggggatagat ctataatgtt 780
cactgttcaa aacgaagact agctattaaa atttcatgcc gggcgagtg gctcacgcct 840
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gtagtgaagc atgccctcaa tcccagctac tcaagaggct gaggcaggag aatcacttgc 1020
actccggagg tagagggtgt ggtgagccga gattgcacca ttgcgctcta gcctgggcaa 1080
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atgtg                                     1145

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<210> 6

<211> 193

<212> PRT

<213> HOMO SAPIENS

<400> 6

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Met Ala Ala Glu Pro Val Glu Asp Asn Cys Ile Asn Phe Val Ala Met
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Lys Phe Ile Asp Asn Thr Leu Tyr Phe Ile Ala Glu Asp Asp Glu Asn
              20              25              30
Leu Glu Ser Asp Tyr Phe Gly Lys Leu Glu Ser Lys Leu Ser Val Ile
              35              40              45
Arg Asn Leu Asn Asp Gln Val Leu Phe Ile Asp Gln Gly Asn Arg Pro
 50              55              60
Leu Phe Glu Asp Met Thr Asp Ser Asp Cys Arg Asp Asn Ala Pro Arg
 65              70              75              80
Thr Ile Phe Ile Ile Ser Met Tyr Lys Asp Ser Gln Pro Arg Gly Met
              85              90              95
Ala Val Thr Ile Ser Val Lys Cys Glu Lys Ile Ser Thr Leu Ser Cys
              100             105             110
Glu Asn Lys Ile Ile Ser Phe Lys Glu Met Asn Pro Pro Asp Asn Ile
              115             120             125
Lys Asp Thr Lys Ser Asp Ile Ile Phe Phe Gln Arg Ser Val Pro Gly
              130             135             140
His Asp Asn Lys Met Gln Phe Glu Ser Ser Ser Tyr Glu Gly Tyr Phe
 145             150             155             160
Leu Ala Cys Glu Lys Glu Arg Asp Leu Phe Lys Leu Ile Leu Lys Lys
              165             170             175
Glu Asp Glu Leu Gly Asp Arg Ser Ile Met Phe Thr Val Gln Asn Glu
              180             185             190
Asp

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<210> 7

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<211> 579

<212> DNA

<213> MUS MUSCULUS

<400> 7

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cactgtacaa ccgcagtaat acggaatata aatgaccaag ttctcttcgt tgacaaaaga 180
cagcctgtgt tcgaggatat gactgatatt gatcaaagtg ccagtgaacc ccagaccaga 240
ctgataatat acatgtacaa agacagtga gtaagaggac tggctgtgac cctctctgtg 300
aaggatagta aaatgtctac cctctcctgt aagaacaaga tcatttcott tgaggaaatg 360
gatccacctg aaaaatttga tgatatacaa agtgcattca tattctttca gaaacgtgtt 420
ccaggacaca acaagatgga gtttgaatct tcactgtatg aaggacactt tcttgcttgc 480
caaaaggaag atgatgcttt caaactcatt ctgaaaaaaaa aggatgaaaa tgggggataaa 540
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<210> 8

<211> 192

<212> PRT

<213> MUS MUSCULUS

<400> 8

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Phe Ile Asp Asn Thr Leu Tyr Phe Ile Pro Glu Glu Asn Gly Asp Leu
      20           25           30
Glu Ser Asp Asn Phe Gly Arg Leu His Cys Thr Thr Ala Val Ile Arg
      35           40           45
Asn Ile Asn Asp Gln Val Leu Phe Val Asp Lys Arg Gln Pro Val Phe
      50           55           60
Glu Asp Met Thr Asp Ile Asp Gln Ser Ala Ser Glu Pro Gln Thr Arg
      65           70           75           80
Leu Ile Ile Tyr Met Tyr Lys Asp Ser Glu Val Arg Gly Leu Ala Val
      85           90           95
Thr Leu Ser Val Lys Asp Ser Lys Met Ser Thr Leu Ser Cys Lys Asn
      100          105          110
Lys Ile Ile Ser Phe Glu Glu Met Asp Pro Pro Glu Asn Ile Asp Asp
      115          120          125
Ile Gln Ser Asp Leu Ile Phe Phe Gln Lys Arg Val Pro Gly His Asn
      130          135          140
Lys Met Glu Phe Glu Ser Ser Leu Tyr Glu Gly His Phe Leu Ala Cys
      145          150          155          160
Gln Lys Glu Asp Asp Ala Phe Lys Leu Ile Leu Lys Lys Lys Asp Glu
      165          170          175
Asn Gly Asp Lys Ser Val Met Phe Thr Leu Thr Asn Leu His Gln Ser
      180          185          190

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<210> 9

<211> 228

<212> DNA

<213> MUS MUSCULUS

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<400> 9

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gacaccatcg agaacgtgaa ggccaagatc caggataaag agggcatccc ccctgaccag 120
cagaggctga tctttgccgg caagcagctg gaagatggcc gcaccctctc tgattacaac 180
atccagaagg agtcaaccct gcacctgggc cttcgccctga gaggtggc      228

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<210> 10

<211> 76

<212> PRT

<213> MUS MUSCULUS

<400> 10

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Val Glu Pro Ser Asp Thr Ile Glu Asn Val Lys Ala Lys Ile Gln Asp
      20              25              30
Lys Glu Gly Ile Pro Pro Asp Gln Gln Arg Leu Ile Phe Ala Gly Lys
      35              40              45
Gln Leu Glu Asp Gly Arg Thr Leu Ser Asp Tyr Asn Ile Gln Lys Glu
      50              55              60
Ser Thr Leu His Leu Val Leu Arg Leu Arg Gly Gly
65              70              75

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